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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,696	10/07/2003	Junichi Sato	1035-474	3574

23117 7590 11/28/2005

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ARLINGTON, VA 22203

EXAMINER

MERCEDES, DISMERY E

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,696

Applicant(s)

SATO ET AL.

Examiner

Dismery E. Mercedes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6, 13-18, 25, 26, 29, 30, 33, 34, 37 and 38 is/are allowed.
- 6) ☐ Claim(s) 7-12, 19-24, 27, 28, 31, 32, 35, 36, 39 and 40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 7-12, 27-28, 31-32, 35-36 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7-9 are rejected as being unpatentable over Chen et al. (US 5,846,648) in view of Tsukuda et al. (US 2002/0060979 A1).

As to Claim 7, Chen et al. discloses a substrate; and a magnetic layer, made of amorphous magnetic material, for magnetically recording information, and subsequent layers provided on the magnetic layer (as depicted in Figs.1-2, 4 and abstract) wherein the magnetic layer has bumps on a surface thereof, and height of the bumps on a surface of the magnetic layer is not less than 2% with respect to an average layer thickness of the magnetic layer (as depicted in Figs.1-2, 4). Chen et al. fails to particularly disclose bumps propagated through to the surfaces of the subsequent layers are provided with a shape different to that of the bumps on the surface of the magnetic layer.

However, Tsukuda et al. discloses stacked recording layers, and the bumps/protrusions/grooves are different in shape (abstract, and Fig.1 & 8). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the

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recording medium disclosed by Chen et al., by implementing different shape bumps/grooves as disclosed by Tsukuda et al. in the amorphous magnetic layer as disclosed by Chen et al. to provide guide grooves that may be used for servo tracking.

As to Claim 8, Chen et al. further discloses wherein the bumps are formed by providing an underlayer, made of nonmagnetic metal element between the substrate and the magnetic layer (as depicted in Figs.1-2, "14")

As to Claim 9, Chen et al. further discloses wherein the nonmagnetic metal element is aluminum (col.11, lines 56-67).

4. Claims 10,11,12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 5,846,648) in view of Tsukuda et al. (US 2002/0060979 A1), further in view of view of Song et al. (US 6,472,049).

As to Claim 10, the combination of Chen et al. and Tsukuda et al. discloses the magnetic recording medium of claim 7, but fail to particularly disclose s wherein a magnetic compensation temperature thereof is not less than 25 degrees Celsius. However, Song et al. discloses such (col.4, lines 30-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention, to modify the medium as disclosed by Chen et al. and Tsukuda et al. by implementing the teachings as disclosed by Song et al., the motivation being to provide the magnetic recording medium of Sato et al. with the enhanced capability of increasing the coercivity of the magnetic recording medium to obtain higher density (col.4, lines 1-11 of Song et al.).

As to Claim 11, Tsukuda et al. further discloses magnetic layer is to magnetically record the information by receiving heat and a magnetic field that are applied ([0073],[1125]).

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As to Claim 12, Song et al. further discloses a compound constituting an element of amorphous magnetic material and nonmagnetic metal (col.4, line 10).

5. As to Claim 19, has limitations similar to those treated in claim 7, and are met by the references as discussed above.

6. As to Claims 20-23 and 24 have limitations similar to those treated in the rejection of claims 8-9, 10-12 and are met by the references as discussed above.

7. As to Claims 27-28,31-32, 35-36,39-40 has limitations similar to those treated in the above rejections, and are met by the references as discussed above.

Allowable Subject Matter

8. Claims 1-6,13-18,25-26,29-30,33-34,37-38 allowed.

Independent Claims 1,13,25,29,33,37 are allowable over the prior art of record since the cited references taken alone or in combination do not teach or suggest: *"wherein the magnetic layer has bumps on a surface thereof and density of the bumps is not less than 400 bumps/ μm^2 , and wherein at least five of the bumps are included in a single magnetic bit."*

Conclusion

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Sato et al. (US 6,804,822); Kirino et al. (2003/0157373 A1) ; Nakama et al. (6,753,064 B1) ; Matsuda et al. (US 6,372,367) ; Uwazumi et al. (US 5,843,561) ; Nishimori et al. (US 5,939,170).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dismery E. Mercedes whose telephone number is 571-272-7558. The examiner can normally be reached on Monday - Friday, from 9:00am - 4:00pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dismery E Mercedes
Examiner
Art Unit 2651

DM



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SUPERVISORY PATENT EXAMINER
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